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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DILDINE JR, R STEPHEN	
ART UNIT	**PAPER NUMBER**
2133	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,868	VIEREGGE ET AL.	
	Examiner	Art Unit	
	R. Stephen Dildine	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12/26/2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 03/12/2002
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 15 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawai (reference A). A comparison of applicants' claims 1-2, 15 and 21 with Kawai follows:

Applicants' Claim 1	**Kawai**
a) on an ongoing basis, monitoring a raw quality measure in respect of a first path through the communications network	The present invention relates to a supervisory system for a radio transmission line, more particularly, it relates to a supervisory system which rapidly detects deterioration in the quality of the digital radio signal transmitted over the transmission line and performs transmission line switching when such deterioration is detected (Col. 1, lines 8-12)
b) on an ongoing basis, deciding on the basis of the quality measure whether a failure on the first path is likely to occur in the immediate future	A comparison unit compares the smallest number with an integrated number of actual errors provided by an up/down counter and produces a line switching signal if the stored smallest number is less than the integrated number (Col. 1, lines 62-66)
c) after deciding a failure is likely to occur in the immediate future but before occurrence of a failure, instigating a switch to a protection path through the network.	A comparison unit compares the smallest number with an integrated number of actual errors provided by an up/down counter and produces a line switching signal if the stored smallest number is less than the integrated number (Col. 1, lines 62-66)

Applicants' Claim 2	Kawai
providing forward error correction coding for data transmitted on the communications network; wherein the raw quality measure is a raw bit error rate (BER) determined prior to performing error correction based on the forward error correction coding.	Reference numeral 11 represents a pseudonoise (PN) code generator which generates a PN code signal for detecting an error rate of the data signal. The PN code signal for detecting the error rate is contained in the data signal in the form of frame synchronization bits or parity bits (Col. 2, lines 40-45)

Applicants' Claim 15	Kawai
deciding on the basis of the raw quality measure whether a failure is likely to occur in the immediate future comprises: determining a first order derivative based on at least one previous raw BER and a current raw BER, predicting a predicted raw BER at a next time interval based on the current BER and the derivative; and deciding a failure is likely to occur in the immediate future if the predicted raw BER is greater than a predetermined threshold value.	A comparison unit compares the smallest number with an integrated number of actual errors provided by an up/down counter and produces a line switching signal if the stored smallest number is less than the integrated number (Col. 1, lines 62-66) (In other words, Kawai determines a first order derivative of BER and compares with a stored number)

Applicants' Claim 21	Kawai
an input for receiving on an ongoing basis raw BER measurements in respect of a path through a network of which the network node forms a part	The above object is attained using a method and apparatus for measuring time interval between successive error pulses which define the error rate (col. 1, lines 51-53)
decision means adapted to, on an ongoing basis, decide on the basis of the raw BER measurements whether a failure on the path is likely to occur in the immediate future	A comparison unit compares the smallest number with an integrated number of actual errors provided by an up/down counter and produces a line switching signal if the stored smallest number is less than the integrated number (Col. 1, lines 62-66)
after deciding a failure is likely to occur in the immediate future but before occurrence of the failure to instigate a switch to a protection path through the network.	determining whether or not the line switching command is to be issued in accordance with variation in the time intervals (Col. 1, lines 53-56)

Claims 1-4, 8, 10-12, 14, 17, 20-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Gillett (reference B). A comparison of applicants' claims 1-4, 8, 10-12, 14, 17, 20-23 and 25 with Gillett follows:

Applicants' Claim 1	**Gillett**
a) on an ongoing basis, monitoring a raw quality measure in respect of a first path through the communications network	Bit error detection is performed, for each incoming facility, by way of an error counter
b) on an ongoing basis, deciding on the basis of the quality measure whether a failure on the first path is likely to occur in the immediate future	For a sample period in which a burst has been detected, the number of errors is reduced to the average of several preceding periods within a sliding time window over which the error ratio is being calculated (Col. 3, lines 1-4)
c) after deciding a failure is likely to occur in the immediate future but before occurrence of a failure, instigating a switch to a protection path through the network.	The total number of errors over the detection window is then compared to a protection switching error threshold, responsive to which protection switching will occur if the threshold is exceeded (Col. 3, lines 4-8)
Applicants' Claim 2	**Gillett**
providing forward error correction coding for data transmitted on the communications network; wherein the raw quality measure is a raw bit error rate (BER) determined prior to performing error correction based on the forward error correction coding.	The bit error ratio of received digital data is monitored, for example by way of cyclic redundancy check (CRC) and other conventional coding techniques (Col. 1, lines 43-45)
Applicants' Claim 3	**Gillett**
first path is a wavelength channel through an optical network.	and are connected on another side to fiber optic cables 4 carrying multiplexed digital communications according to a conventional standard such as the SONET standard (Col. 3, lines 59-62)
Applicants' Claim 4	**Gillett**
comparing the quality measure to a threshold.	The number of bit errors over a series of sample periods are counted, and the number of errors detected in each sample period is compared against a burst error threshold (Abstract, third sentence)

Applicants' Claim 8	Gillett
completing the switch to the protection path before failure of the first path.	Thus, the system of FIG. 3 performs the supervising operation for the digital radio transmission line in terms of both the number N of the error pulses and the time interval .DELTA.t thereof in relation to the predetermined value n corresponding to each time interval .DELTA.t. This enables a rapid issuance of the line switching command, particularly when rapid change occurs because of fading, and accordingly, the digital radio communication system can still be maintained at normal operation through line switching even when rapid changes occur in the fading (Col. 6, lines 24-34)
Applicants' Claim 10	**Gillett**
wherein the protection path is a dedicated path for the first path	According to the 1+1 protection scheme, one of the fiber optic cables 4E, 4W is designated as the primary line, in the example of FIG. 1a, 1b, the primary line is fiber optic cable 4E, such that, in the normal operating state prior to protection switching, switch 8 communicates the traffic from fiber optic cable 4E onto coaxial DS-n lines 7. The other fiber optic cable, cable 4W in this example, thus serves as the backup line for the 1+1 protection scheme (Col. 4, lines 29-38)
Applicants' Claim 12	**Gillett**
wherein the quality measure in respect of a first path through the communications network comprises a BER measurement for each of at least one light path making up the first path	For a sample period in which a burst has been detected, the number of errors is reduced to the average of several preceding periods within a sliding time window over which the error ratio is being calculated (Col. 3, lines 1-4)
Applicants' Claim 14	**Gillett**
the raw quality measure is a function of one or more raw quality measures	Bit error detection is performed, for each incoming facility, by way of an error counter (Col. 2, lines 52-54)
taken for light sections forming part of said path	the primary line is fiber optic cable 4E (Col. 4, lines 32-33)

Applicants' Claim 17	Gillett
a) on an ongoing basis, monitoring a raw BER in respect of a first light path between components in an optical communications network	Bit error detection is performed, for each incoming facility, by way of an error counter (Col. 2, lines 52-54)
b) on an ongoing basis, deciding on the basis of the raw BER whether a failure on the first light path is likely to occur in the immediate future	For a sample period in which a burst has been detected, the number of errors is reduced to the average of several preceding periods within a sliding time window over which the error ratio is being calculated (Col. 3, lines 1-4)
c) after deciding a failure is likely to occur in the immediate future but before occurrence of a failure, instigating a switch to a protection link through the network, and switching at least one service from the first light path to the protection light path	The total number of errors over the detection window is then compared to a protection switching error threshold, responsive to which protection switching will occur if the threshold is exceeded (Col. 3, lines 4-8)
Applicants' Claim 20	**Gillett**
the raw quality measure is a function of one or more raw quality measures	Bit error detection is performed, for each incoming facility, by way of an error counter (Col. 2, lines 52-54)
taken for light sections forming part of said path	the primary line is fiber optic cable 4E (Col. 4, lines 32-33)
Applicants' Claim 21	**Gillett**
an input for receiving on an ongoing basis raw BER measurements in respect of a path through a network of which the network node forms a part	Bit error detection is performed, for each incoming facility, by way of an error counter (Col. 2, lines 52-54)
decision means adapted to, on an ongoing basis, decide on the basis of the raw BER measurements whether a failure on the path is likely to occur in the immediate future	For a sample period in which a burst has been detected, the number of errors is reduced to the average of several preceding periods within a sliding time window over which the error ratio is being calculated (Col. 3, lines 1-4)
after deciding a failure is likely to occur in the immediate future but before occurrence of the failure to instigate a switch to a protection path through the network	The total number of errors over the detection window is then compared to a protection switching error threshold, responsive to which protection switching will occur if the threshold is exceeded (Col. 3, lines 4-8)
Applicants' Claim 22	**Gillett**
the first path is a wavelength channel through an optical network	and are connected on another side to fiber optic cables 4 carrying multiplexed digital communications according to a conventional standard such as the SONET standard (Col. 3, lines 59-62)

Applicants' Claim 23	Gillett
complete the switch to the protection path before failure of the first path	Thus, the system of FIG. 3 performs the supervising operation for the digital radio transmission line in terms of both the number N of the error pulses and the time interval .DELTA.t thereof in relation to the predetermined value n corresponding to each time interval .DELTA.t. This enables a rapid issuance of the line switching command, particularly when rapid change occurs because of fading, and accordingly, the digital radio communication system can still be maintained at normal operation through line switching even when rapid changes occur in the fading (Col. 6, lines 24-34)

Applicants' Claim 25	Gillett
the raw BER measurements comprise a BER measurement for each link making up the first path	Bit error detection is performed, for each incoming facility, by way of an error counter (Col. 2, lines 52-54)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Kawai or Gillett as applied to claim 1 above, and further in view of Taniguchi (reference N). Applicants' claim 11 adds to the combination of claim 1 "instigating a switch to a protection path through the network is done for higher priority traffic before being done for lower priority traffic". Taniguchi teaches a digital communication system with "regular channels" and at least one protection channel wherein a high priority signal is switched to a protection path (Column 2, line 47 to column 3, line 1) upon detection of a fault in a regular channel. The desirability of preserving high priority traffic at the expense of low priority traffic is well understood by those skilled in the art at the time of applicants' invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "immediate future" in claims 1, 4-7, 15-17, and 21 is a relative term that renders claims 1-26 indefinite. The term "immediate future" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For example, Madam Lulu (reference W) equates the term "immediate future" with a time period of four months while Alfred Russel Wallace (reference X) equated the term "immediate future" with the coming year.

Conclusion

At page 2, lines 22-23, with reference to U.S. patent 6,141,532 applicant states "The reference does not deal with performing protection switching after a call is connected and is ongoing." however, it is noted that this reference states at column 1, line 66 et seq. "In the conventional switch-over system, however, a circuit which is in conversation and connected to the circuit switching system 11 when the MB signal is received cannot be switched over to the back-up transmission line. This results in a problem that the conversation must be continued in the state of the poor line quality (with BER of 10^{-3} or less) until the conversation is completed" which shows that this reference recognizes that failure to w\switch paths during a call is undesirable.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Peters et al. (reference D) shows that it was known at the time of applicants' invention to, on an ongoing basis, monitor a raw BER of an optical network. Robinson et al. (Reference C) is cited to show monitoring the quality of an optical path and taking appropriate actions to either make adjustments to the path or switch to another path. Mizuno (reference E) is cited to show an optical/radio communication system with a radio standby channel. Yamamoto (reference U) is cited to show the Yamamoto Quality Metric. Clark (reference V) is cited to show measuring service quality in digital communications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is 703-305-5524. The examiner can normally be reached on M, Tu, Th, F 5:55 am to 4:25 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Stephen Dildine

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